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Stability and Fluctuation of Veterans' Reports of Combat Exposure

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The stability of memories of traumatic childhood events has been closely examined in recent years due to the controversy over "false memories" (e.g., Bowers & Farvolden, 1996a, 1996b; Loftus, 1993; Pennebaker & Memon, 1996; Pope, 1996). Surprisingly, this controversy has not spurred similarly close scrutiny of memories of traumatic events experienced in adulthood, despite the fact that the long-term stability of such memories has not been established.

Stability of Retrospective Report

Most of the existing trauma literature reflects the implicit assumption that reports of stressors are stable over time. As Roemer, Litz, Orsillo, Ehlich, and Friedman (1996) note, the combat trauma literature in particular appears to assume that retrospective reports of exposure are objective, accurate, and reliable recollections of past events. This assumption may be unfounded, however, as evidence begins to accumulate that reports of exposure to stressful or traumatic events are not stable and reliable over the months and years immediately following the trauma exposure (McFarlane, 1988; Roemer et al., 1996; Schwarz, Kowalski, & McNally, 1993).

In an investigation of firefighters exposed to a bushfire disaster in Australia, McFarlane (1988) examined firefighters' descriptions of the traumatic events at 4 and 11 months post-

trauma. He found that a subset of individuals changed their reports of certain aspects of traumatic events over the 7-month interim. During this time, there was a significant falloff in the reporting of physical injury for those who reported no substantial psychological distress. In contrast, participants who reported substantial psychological distress had consistent reports of the physical injuries that took place during the fire.

Schwarz et al. (1993) also explored differences in retrospective reports at two time points following a disaster. In their study of 12 school personnel who were exposed to a school shooting, participants were asked to report on aspects of the traumatic event (i.e., emotional reactions, sense of life threat, and sensory experiences) at 6 and at 18 months following the incident. All of the participants changed some aspect of their recall at 18 months. Enlargement in report of the traumatic event (i.e., more emotional reactions, a greater sense of life threat, and more sensory experiences) was associated with symptoms of posttraumatic stress disorder (PTSD). Conversely, diminishment was associated with lessening of anxiety and increase in self-confidence.

Roemer and colleagues (1996) obtained frequency estimates of exposure to war-zone stressors at two time points from American soldiers who had served in the peacekeeping mission in Somalia. Overall, there was a significant increase in participants' frequency reports from initial (within a year of returning) to follow-up assessments (an average of 21 months later). Increase in frequency reports was associated with severity of reported PTSD symptomatology.

These three studies illustrate that substantial changes in retrospective recall are not uncommon among adults who experience traumatic events. They also show that reports of trauma exposure are not entirely reliable over a period of months or years after the trauma exposure. Further, they suggest that diminishment in report of severity of trauma exposure is related to absence of psychological distress and that enlargement is associated with the presence of psychological symptoms.

PTSD and Dose-Response Theory

☐ Posttraumatic stress disorder, first codified in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-III;* American Psychiatric Association, 1980), has been identified as one of the most common sequelae of exposure to trauma. Many of the empirical studies on the psychological aftermath of trauma exposure have examined the nature and extent of the exposure (Criterion A for PTSD diagnosis) and the subsequent severity of the symptoms of psychological, social, and biological impairment (Criteria B, C, and D) in traumatized populations (e.g., Kulka et al., 1990; Yule & Williams, 1990). PTSD researchers have supported the notion of a "dose-response" relationship—that is, greater exposure to traumatic events leads to greater dysfunction following exposure (e.g., Fairbank, Schlenger, Caddell, & Woods, 1994; Green, 1990; Kaylor, King, & King, 1987; Kulka et al., 1990; March, 1993).

Dose-response theory presumes both that reports of trauma exposure are constant and that the magnitude of trauma exposure influences response. However, as noted above, report of dose can change substantially over time, and enlargement in report of dose is associated with more psychological symptomatology. Thus, contrary to previous assumptions, it appears that current psychological symptoms may influence the report of dose.

Trauma Exposure and Criterion A

☐ In the area of combat-related stress disorders, exposure to potential traumatic events has most commonly been measured by the Combat Exposure Scale (CES; Kaylor et al., 1987; Keane et al., 1989; Kulka et al., 1990), a retrospective set of self-ratings. The CES was the instrument chosen to assess dose in the National Vietnam Veterans Readjustment Study (NVVRS; Kulka et al., 1990), the most comprehensive and rigorous investigation of psychological adjustment in war veterans to date. Literature generated from this large-scale project

has provided the foundation for the dose-response theory that is now commonly endorsed by researchers and clinicians in the field of PTSD. Thus, the CES has been instrumental in the development of this theory.

Measures of trauma exposure, such as the CES, overlap with but have important differences from the identification of a traumatic event necessary to fulfill Criterion A for *DSM-IV* PTSD diagnosis (American Psychiatric Association, 1994). The conditions that must be met for an event to qualify for PTSD Criterion A include confrontation with death or threat to physical integrity accompanied by fear, horror, or helplessness. These conditions do not require a specific amount or intensity of exposure. Thus, a salient traumatic event is identified but not quantified for PTSD Criterion A. In most studies of PTSD symptoms, Criterion A has been ascertained by interview in a relatively unstructured way; substantial qualitative judgment is required in determining whether an event is of sufficient magnitude to qualify for Criterion A. Reliability of Criterion A assessment has rarely been examined.

The study reported in this chapter examined long-term reliability of reports of traumatic military events decades after military service. We compared CES scores at two evaluation points separated by at least 4 years in treatment-seeking Vietnam theater veterans who experienced chronic PTSD subsequent to military service in early adulthood. In addition, we compared descriptive features of the most salient traumatic military events reported (Criterion A) at these two times to investigate the stability of these reports. Finally, we considered measures of PTSD symptomatology at both time points in relation to CES scores to evaluate the dose-response relationship.

Method

Population

Participants were 38 male Vietnam theater veterans who were given comprehensive clinical assessments for PTSD between 1986 and 1990 (Time 1) and who agreed to take part in a follow-up research study in 1994 or 1995 (Time 2). The mean time span between Times 1 and 2 was 6.59 years (range 4.42 to 10 years).

Demographic and Military Service Descriptors

Mean age of participants at Time 1 was 39.7 years; 81% were Caucasian and 19% were African American. At Time 1, 31.6% were married, 23.7% were never married, 21.1% were divorced, and 7.9% were unmarried and living with a partner. Also at Time 1, 39.5% were employed full-time, 2.6% were employed part-time, 2.6% were students, and 52.6% were unemployed. Mean annual income of participants at Time 1 was $14,838 (*SD* = 9,263). Mean number of jobs between discharge from the military and Time 1 was 15.3 (*SD* = 21.9).

Mean number of months the participants spent in the Vietnam theater was 13.7 (*SD* = 3.9). The majority of the participants (60.5%) had served in the Army; 31.6% had served in the Marine Corps, 5.3% in the Air Force, and 2.6% in the Navy.

Measures and Procedures

Time 1

Between 1986 and 1990, 111 treatment-seeking Vietnam veterans took part in extensive clinical assessment for PTSD lasting 8 to 10 hours. As part of that process, each completed a clinical interview to determine *DSM-III-R* PTSD (American Psychiatric Association, 1987), the Combat Exposure Scale (Keane et al., 1989), and the Mississippi Scale for Combat-Related PTSD (M-PTSD). The CES is a 7-item, self-report measure of combat-related stressors experienced by combatants. Keane and colleagues (1989) found this measure to have high internal consistency (alpha = .85) and high test-retest reliability over a 1-week period ($r = .97, p < .0001$). The M-PTSD is a 35-item scale that reflects severity of PTSD symptoms. Respondents rate 35 symptoms on 5-point Likert-type scales. This instrument has also been

found to have high internal consistency (alpha = .94) and high test-retest reliability over a 1-week period ($r = .97$, $p < .0001$; Keane, Caddell, & Taylor, 1988). In the course of the clinical interview, veterans were asked to describe combat experiences that continue to bother them. These events were noted in a clinical assessment report and used to determine Criterion A at Time 1 for the current study.

Time 2

A follow-up study was conducted in 1994 and 1995 to examine the course of PTSD symptomatology. The research team attempted to contact and recruit all 111 veterans assessed at Time 1. A total of 38 veterans (34.3%) completed the follow-up protocol; of the remainder, 19 (17.1%) declined to participate, 14 (12.6%) were identified as deceased, 2 (1.8%) were housed in controlled environments (prison or inpatient program) and unable to participate, 14 (12.6%) were reached but failed to appear for the evaluation, and 24 (21.6%) could not be located despite extensive efforts, including the use of a national locator service. Of the 38 participants, 30 were interviewed in person at the clinic where the original interviews took place. The other 8 had moved away from the area but agreed to be interviewed over the telephone and to complete self-report measures that were sent to them in the mail.

Chi-square statistics and *t* tests were utilized to compare the 38 participants and the 73 individuals who did not participate in follow-up in terms of demographic and military variables and scores on psychometric measures. No significant differences were found between these two groups in demographic variables (ethnicity, marital status, employment status, income, number of jobs postmilitary), military characteristics (number of months in Vietnam theater, branch of service), or scores on psychometric instruments (CES and M-PTSD).

The protocol at Time 2 included the Clinician Administered PTSD Scale for *DSM-III-R* diagnosis (CAPS; Blake et al., 1990), the CES, and the M-PTSD. Using a systematic series of questions, participants were asked to describe the salient stressful military event or events that continue to bother them. The clinician recorded these responses and used them to determine whether Criterion A was established for the CAPS PTSD diagnosis.

Telephone participants were given an abbreviated version of this protocol. They did not complete the CAPS or the interview about salient stressful military events; instead, they completed a shorter standardized clinical interview for PTSD, the PTSD module of the Structured Clinical Interview for Diagnosis (Spitzer, Williams, Gibbons, & First, 1990).

Results

PTSD Symptomatology

At Time 1, 31 of the 38 (81.6%) participants met *DSM-III-R* diagnostic criteria for PTSD; at Time 2, 29 of the 38 participants (76.3%) met diagnostic criteria. The mean M-PTSD scores were 123.6 ($SD = 20.0$) at Time 1 and 120.9 ($SD = 26.9$) at Time 2. These were well above the 107 cutoff for PTSD suggested by Keane et al. (1988).

Combat Exposure Scale

A total of 29 participants completed the CES at both Times 1 and 2. The correlation between CES scores on each occasion was substantial and significant ($r = .67$, $p < .001$). The mean CES score was 29.06 ($SD = 7.77$) at Time 1 and 29.34 ($SD = 9.80$) at Time 2. These mean scores fall into the "moderate to heavy" range for this scale.

Although 22 (76%) of the participants' scores on the CES were within one standard deviation or 8 points of their original score, examination of the individual scores illustrated substantial change for a few participants. For 5 participants (17%), CES scores increased 8 or more points (range +8 to +19). For 2 participants (7%), the scores decreased more than 8 points (range −11 to −17).

Verbal Reports of Criterion A

There were 30 participants interviewed at both Times 1 and 2 for Criterion A, and 82% (23

participants) reported identical Criterion A events at both Times 1 and 2.

Of the 5 participants who reported nonidentical traumatic stressors, none reported new recall for previously forgotten events; 4 reported combat events on both occasions, but different events were considered most salient. At Time 2, all 4 of these participants reported that they could recall the events identified at Time 1; they described that the events related at Time 1 continued to bother them, but that other events were currently more prominent for them. These participants noted various reasons for the change: reflecting on and talking about the incidents changed their thinking about them, reminders or triggers in current life influenced current salience, and differences in interviewers across occasions led to differential disclosures.

The remaining participant had reported combat events at Time 1 but changed to a noncombat military event (not previously reported) at Time 2. This individual described that therapy between Times 1 and 2 helped him to understand the impact of childhood abuse experiences on his subsequent functioning. As a result, the traumatic military event he found most salient at Time 2 was not a combat experience, but an event he linked to his childhood abuse. He reported that he was severely humiliated by some of his fellow soldiers for masturbating in the shower. This participant described that the combat events detailed at Time 1 continued to bother him, but not as much as the noncombat shower incident he detailed at Time 2.

CES and M-PTSD

No correlation or association was found between changes in CES and changes in M-PTSD ($r = -.01, p = .76$).

Discussion

PTSD Symptomatology

More than 75% of the Vietnam theater veterans seeking treatment for PTSD in this sample were diagnosed with PTSD at each assessment point. In addition, M-PTSD scores indicate that most had clinically significant symptoms of PTSD. By contrast, the NVVRS, an epidemiological study including treatment-seeking and non-treatment-seeking veterans, found that the majority of Vietnam theater veterans have had few readjustment problems; in the NVVRS only 26.1% of all male Vietnam theater veterans had clinically significant symptoms of PTSD (Kulka et al., 1990). Thus, the current sample likely represents a restricted range of Vietnam theater veterans with significant PTSD symptoms. Although this sample may be representative of treatment-seeking veterans with PTSD, caution must be exercised in generalizing the results from this small, extreme sample to non-treatment-seeking samples.

Combat Exposure Scale

The CES scores remained stable over a 6-year span, despite the potential influence of several hypothesized factors that might cause variability in reporting over time. These factors include (a) poor recall for events that took place years prior to assessment under conditions of stress; (b) enhanced recall of past events due to therapy, reflection, or discussion with others; (c) deliberate or unintentional distorting in response to demand characteristics of the situation; and (d) variability due to random factors such as fatigue or misinterpretation of questions. Thus, the stability of this measure over several years is noteworthy.

When the scores are examined individually, however, dramatic changes can be seen for some participants. These findings suggest that mean scores and correlations, which indicate few differences for the whole sample between Times 1 and 2, may not be adequate to characterize the changes for all individuals.

Verbal Reports of Criterion A

The verbal reports of Criterion A also illustrate marked stability. In more than 80% of the cases, the events described at Time 1 to establish Criterion A for diagnosis were the same as those described several years later. For 5 individuals, Criterion A did change. None of these 5 forgot the events first reported, nor did they have new recall of events, but the relative prominence of

military events changed. In 4 of the 5 cases, the events described at Times 1 and 2 were similar; they were combat incidents at both times. In one case, however, the event described at Time 2 was quite different and had not been reported at Time 1. These cases suggest that relative salience of traumatic events may change over time for some individuals, and in some cases the changes can be marked.

CES and M-PTSD

The lack of a significant correlation between changes in CES and M-PTSD suggests that there is no common factor that influences both report of trauma exposure and symptoms of PTSD in this sample. These results are not consistent with the findings of Schwarz et al. (1993) or those of Roemer et al. (1996), showing enlargement in reports of trauma exposure to be associated with symptoms of PTSD. The participants in the current study were seeking treatment for PTSD at Time 1, however, whereas the participants in the Schwarz et al. and Roemer et al. studies were not seeking treatment. Because the base rate of PTSD is so high in the current sample, an association between changes in report of Criterion A and changes in PTSD symptoms may be undetectable.

Limitations

☐ This study has some limitations with respect to sampling, measurement, and method that should be recognized. The relatively small number of participants reduces the statistical power of the study, although the focus on within-subject effects mitigates this issue somewhat. And even though the sample is grossly comparable to the full patient cohort from which it was drawn, there may have been some selection bias on variables not measured in this study. Replication will help resolve this concern.

In terms of measurement, this study used the CES to quantify exposure to potentially traumatic events in a war zone. The CES is narrowly focused on traditional combat roles and duties, and may fail to capture other aspects of traumatic exposure that are currently considered important in the assessment of Criterion A. Subjective appraisal of fear or horror, for example, is not included in this measure. Reports about these elements of trauma exposure might be more likely to change over time given their subjective nature. Thus, measures of trauma that are consistent with the *DSM-IV* Criterion A might show more variability over time.

In terms of method, the aims for evaluation differed at the two assessment points. The initial evaluations were made for clinical purposes, with no plan for subsequent follow-up. The Time 2 evaluations were implemented for research and program evaluation purposes, and participation was solicited. As a result, participants' comfort levels, alliance with interviewers, and trust regarding confidentiality of information—all of which likely affected willingness to report openly and accurately—may have differed across the two evaluations.

Conclusion

☐ Reports of dose of trauma exposure (as measured by the CES) and reports of most salient traumatic military events (identified as Criterion A) were generally consistent over time in this study. However, there were some dramatic revisions in these reports at Time 2 for some individuals. Thus, although reports of trauma exposure may be stable over time for most people, there exists a subset of individuals whose reports can change markedly. The substantial heterogeneity of this sample was not conveyed by considering the data in aggregated form; examination of changes in report of trauma for individuals is recommended.

The results of the current study, considered along with previous findings on the fluctuation in reports of exposure to trauma (McFarlane, 1988; Roemer et al., 1996; Schwarz et al., 1993), suggest that clinicians and researchers should not assume that reports of trauma exposure are stable. The findings of the current study were not consistent with recent investigations using non-treatment-seeking populations that found associations between PTSD symptoms and enlargement in reports of trauma exposure

(Roemer et al., 1996; Schwarz et al., 1993). However, the treatment-seeking sample in this study was too small and the range too restricted to detect such an association adequately. Further research is needed to identify the factors that influence changes in reports of trauma exposure and to identify the individuals who are likely to be influenced by these factors.

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